

AMENDMENTS TO THE CLAIMS

Claim 1 (Currently Amended): A burst mode optical receiver comprising:

- a photodiode which converts an input optical signal into a current signal;
- a pre-amplifier which converts the current signal into a voltage signal;
- a single-to-differential converter which converts the single voltage signal output from the pre-amplifier into differential signals wherein the single-to-differential converter comprises a differential amplifier which receives a predetermined reference voltage as a first input and the single voltage signal as a second input to output symmetrical differential signals;
- a post amplifier which amplifies the differential signals and cancels an offset occurring during the amplification or offsets inherited from the differential signals; and
- a discriminator which discriminates data from the differential signals;
- a peak value sensor which detects the maximum or minimum levels from the outputs of a limiting amplifier; and
- an error amplifier which amplifies the difference between the maximum or minimum levels and feeds an amplification result to the limiting amplifier,
- wherein intrinsic offsets and offsets inherited from a signal output from the differential amplifier are canceled if DC gain from the error amplifier is greater than a DC gain of the limiting amplifier, and the post amplifier comprises a series of sets, each of the sets comprising:
 - a the limiting amplifier which amplifies the differential signals and cancels offsets inherited from the differential signals or an offset occurring during the amplification according to a predetermined control signal wherein the differential signals is are output from the single-to-differential converter for the first set and output from the limiting amplifier of the previous set for the subsequent sets; and
 - a cascaded set of a plurality of auto-offset cancellation portion which calculates a difference between outputs of the limiting amplifier, amplifies the difference, and provides the amplification result as the predetermined control signal to the limiting amplifier, wherein the auto-offset cancellation portions comprises:
 - the peak value sensor; and
 - the error amplifier.

Claim 2 (Canceled)

Claim 3 (Previously Presented): The burst mode optical receiver of claim 1, wherein the single-to-differential converter further comprises an auto threshold controller which detects maximum and minimum levels of the single voltage signal and provides a substantial middle value of the maximum and minimum levels as a first input to the differential amplifier.

Claim 4 (Original): The burst mode optical receiver of claim 3, wherein the auto threshold controller comprises:

- a top holder which detects the maximum level of the single voltage signal and holds the maximum level for a predetermined period of time;

- a bottom holder which detects the minimum level of the single voltage signal and holds the minimum level for a predetermined period of time; and

- a voltage divider which detects the substantial middle value of the maximum and the minimum levels.

Claim 5 (Canceled)

Claim 6 (Currently Amended): The burst mode optical receiver of ~~claim 5~~claim 1, wherein the limiting amplifier is a differential amplifier that operates in a linear region.

Claims 7-8 (Canceled)

Claim 9 (Currently Amended): The burst mode optical receiver of claim 1, wherein the post amplifier comprises cascaded sets, each of the sets comprising:

- a first limiting amplifier which amplifies the differential signals and cancels the offsets inherited from the differential signals or the offset occurring during the amplification according to the predetermined control signal;

an auto offset cancellation portion which calculates a difference between the outputs of the first limiting amplifier, amplifies the difference, and provides the amplification result as the predetermined control signal to the first limiting amplifier;

a second limiting amplifier which amplifies differential signals output from the first limiting amplifier; and

wherein the differential signals is-are output from the single-to-differential converter for the first set and output from the second limiting amplifier of the previous set for the subsequent sets, and the auto-offset cancellation portion comprises:

a the peak value sensor which detects the maximum and minimum levels from the outputs of the first limiting amplifier; and

the error amplifier.

Claim 10 (Previously Amended): The burst mode optical receiver of claim 9, wherein the first or second limiting amplifier is a differential amplifier that operates in a linear region.

Claims 11-12 (Canceled)